# Postmenopausal Breast Cancer Survivors at Risk for Osteoporosis: Physical Activity, Vigor, and Vitality

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**Purpose/Objectives:** To test a multicomponent intervention to prevent and treat osteoporosis in breast cancer survivors.

**Design:** Descriptive, correlational.

**Setting:** Midwestern urban and rural sites.

**Sample:** 27 postmenopausal breast cancer survivors between the ages of 42–65 who had completed treatment, except for tamoxifen, and were not candidates for hormone replacement therapy.

**Methods:** Bone mineral density (BMD) of the hip, spine, and forearm was measured using dual-energy x-ray absorptiometry. Physical activity was recorded using the Seven-Day Physical Activity Recall–Adapted, which classifies activities as light, moderate, hard, or very hard. Vigor was measured with the eight-item subscale of the Profile of Mood State based on the previous week. Vitality was measured using the four-question subscale of the Medical Outcomes Study 36-Item Short Form Health Survey.

**Main Research Variables:** Physical activity, vigor, vitality, and BMD.

**Findings:** More than half reported no very hard physical activity, and 37% reported no hard activity. The association of vigor with total metabolic equivalents for combined moderate, hard, and very hard activities was significant ($r = 0.536$, $p = 0.007$), as were the hours spent in the combined moderate to very hard activities. No relationship was found between vigor, vitality, or any level of activity and BMD.

**Conclusions:** Survivors reported high levels of perceived vigor and vitality but spent more time engaged in light versus hard or very hard activities. Positive correlations between higher levels of vitality and vigor with metabolic equivalents support the idea that activity promotes perceptions of energy and positive feelings.

**Implications for Nursing:** Breast cancer survivors are at risk for osteoporosis. Nurses should be aware of increased risk, recommend screening for bone health, and encourage physical activity.

## Key Points . . .

- ➤ Women who have undergone treatment for breast cancer are at higher risk for osteoporosis because of loss of ovarian function.
- ➤ A low level of physical activity is an additional risk factor for osteoporosis; increasing physical activity, particularly weight bearing, is a strategy for maintaining bone health.
- ➤ A positive correlation existed between higher levels of physical activity and energy expended and higher levels of vigor and vitality in this group of breast cancer survivors.

Osteoporosis is a major cause of morbidity and mortality for postmenopausal women, with an estimated 40% expected to suffer a fragility fracture in their lifetimes if osteoporosis is untreated (Lindsay, 1993; Scheiber & Torregrosa, 1998). Fractures occur most commonly in the vertebral column, hip, and wrist. Mortality three to four months after a hip fracture is 20% (Gibaldi, 1997). Women who have osteoporosis suffer from chronic pain, loss of height and change in body stature, and increasing loss of mobility with resultant social isolation.

Women who are diagnosed with breast cancer often are treated with adjuvant chemotherapy, and the improved treatment protocols have resulted in an increasing number of women who survive the disease. However, the medications that are used to achieve this positive outcome often result in early menopause, with more than 50% of women younger than 50 experiencing ovarian failure (Ali & Twibell, 1994; Cobleigh et al., 1994; Mahon, 1998). Loss of ovarian function produces a rapid increase in bone remodeling with a consequent loss of skeletal mass. This is true whether the loss is the result of natural, age-related decline in ovarian production of estrogen or iatrogenic causes (e.g., oophorectomy, chemotherapeutic agents).

Treatment and prevention of osteoporosis have been studied by many investigators. They have examined hormone replacement therapy (HRT) with estrogen or estrogen plus progestin, the bisphosphonates including alendronate, calcium with and without vitamin D, calcitonin, selective estrogen

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